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| FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary) | ATTY. DOCKET NO. 2997-1-2-2 | SERIAL NO. 09/434,695 |
| | APPLICANT BARCLAY | |
| | FILING DATE November 5, 1999 | GROUP ART 1761 |

U.S. PATENT DOCUMENTS

| *EXAMINER INITIAL | | DOCUMENT NUMBER | DATE | NAME | CLASS | SUB CLASS | FILING DATE IF APPROP. |
|----------------------|----|--------------------|----------|------------------|-------|--------------|---------------------------|
| <i>du</i> | AA | 5,415,879 | 5/16/95 | Oh | 1 | 1 | |
| | AB | 5,234,699 | 8/10/93 | Yeo | 1 | 1 | |
| | AC | 5,133,963 | 7/28/92 | Ise | 2 | 1 | |
| | AD | 5,012,761 | 5/7/91 | Oh | 1 | 1 | |
| | AE | 4,792,418 | 12/20/88 | Rubin et al. | 1 | 1 | |
| | AF | 4,758,438 | 7/1988 | Stroz et al. | 1 | 1 | |
| | AG | 4,304,794 | 12/1981 | Dwivedi et al. | 1 | 1 | |
| | AH | 3,924,017 | 12/1975 | Lee et al. | 1 | 1 | |
| | AI | 3,908,028 | 9/1975 | Neely et al. | 1 | 1 | |
| | AJ | 3,908,026 | 9/1975 | Neely et al. | 1 | 1 | |
| | AK | 3,667,969 | 6/1972 | Kracauer | 1 | 1 | |
| | AL | 3,647,482 | 3/1972 | Yueh | 1 | 1 | |
| | AM | 3,296,079 | 1/1967 | Griffin | 1 | 1 | |
| | AN | 5,130,242 | 07/14/92 | Barclay | 1 | 1 | |
| | AO | 4,670,285 | 06/02/87 | Clandinin et al. | 1 | 1 | |
| | AP | 5,340,742 | 08/23/94 | Barclay | 1 | 1 | |
| <i>du</i> | AQ | 5,340,594 | 08/23/94 | Barclay | 1 | 1 | |

FOREIGN PATENT DOCUMENTS

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| EXAMINER <i>Anthony Waier</i> | DATE CONSIDERED <i>2/28/00</i> |
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| | | DOCUMENT NUMBER | DATE | COUNTRY | CLAS S | SUB CLASS | TRANSLATION | |
|----|--------------|--------------------|-------|---------|-----------|--------------|-------------|----|
| | | | | | | | YES | NO |
| AR | WO 89/00606 | 1/26/89 | PCT | / | / | | | |
| AS | WO 88/10112 | 12/29/88 | PCT | / | / | | | |
| AT | 60-105471 | 10/6/85 | JAPAN | / | / | | | |
| AU | 58-213613 | 6/10/85 | JAPAN | / | / | | | |
| AV | 58-196068 | 5/17/85 | JAPAN | / | / | | | |
| AW | WO 92/12711 | 08/06/92 | PCT | / | / | | | |
| AX | WO 91/14427 | 10/03/91 | PCT | / | / | | | |
| AY | 0 231 904 A2 | 08/12/87 | EPO | / | / | | | |

OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)

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| AZ | Ainsworth, "Introduction and Keys to Higher Taxa.", pp. 1-7, 1973, in <i>The Fungi. An Advanced Treatise</i> , Vol. 4B, (G.C. Ainsworth et al. eds., Academic Press) |
| BA | Bahnweg et al., "A New Approach to Taxonomy of the Thraustochytriales and Labyrinthulales", pp. 131-140, 1986, in <i>The Biology of Marine Fungi</i> , (S.T. Moss ed., Cambridge University Press) |
| BB | Bartnicki-Garcia, "The Cell Wall: A Crucial Structure in Fungal Evolution", pp. 389-403, 1988, in <i>Evolutionary Biology of the Fungi</i> , (A.D.M. Rayner et al. eds., Cambridge University Press) |
| BC | Behrens et al., "Eicosapentaenoic Acid from Microalgae", p. 623, col. 2, abstract no. 193025d, 1989, Chemical Abstracts, Vol. 111, No. 21, Nov. 20. |
| BD | Cavalier-Smith, "The Origin of Nuclei and of Eukaryotic Cells", pp. 463-468, 1975, <i>Nature</i> , Vol. 256 |
| BE | Cerda-Olmeda et al., "A Biography of <i>Phycomyces</i> ", pp. 7-26, 1987, in <i>Phycomyces</i> , (Cerda-Olmeda et al. eds., CSH Laboratory) |
| BF | Couch et al., 1973, <i>Lipids</i> , 8(7):385-392 |
| BG | Cruickshank, 1934, "Studies in Fat Metabolism in the Fowl" in <i>Biochem. J.</i> , 28:965-977 |
| BH | Dick, "Saprolegniales", pp. 113-144, 1973, in <i>The Fungi. An Advanced Treatise</i> , (G.C. Ainsworth et al. eds., Academic Press) |

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| AW | BI | Ellenbogen, "Polyunsaturated Fatty Acids of Aquatic Fungi: Possible Phylogenetic Significance", pp. 805-811, 1969, <i>Comp. Biochem. Physiol.</i> , Vol. 29 |
| | BJ | Emerson, "Current Trends of Experimental Research in the Aquatic Phycomycetes", pp. 169-200, 1950, <i>Ann. Rev. Micro.</i> , Vol. 4 |
| | BK | Erwin, "Comparative Biochemistry of Fatty Acids in Eukaryotic Microorganisms", pp. 41-143, 1973, in <i>Lipids and Biomembranes of Eukaryotic Microorganisms</i> , (J. Erwin ed., Academic Press) |
| | BL | Findlay et al., "Biochemical Indicators of the Role of Fungi and Thraustochytrids in Mangrove Detrital Systems", pp. 91-103, 1986, in <i>The Biology of Marine Fungi</i> , (S.T. Moss ed., Cambridge University Press) |
| | BM | Fisher et al., 1957, <i>J. Nutr.</i> , 63:119-129 |
| | BN | Fuller, et al., "Isolation and Pure Culture Study of Marine Phycomycetes", pp. 745-756, 1964, <i>Mycologia</i> , Vol. 56 |
| | BO | Gellerman et al., "Methyl-Directed Desaturation of Arachidonic to Eicosapentaenoic Acid in the Fungus, <i>Saprolegnia Parasitica</i> ", pp. 23-30, 1979, <i>Biochim. Biophys. Acta</i> , Vol. 573 |
| | BP | Goldstein, "Development and Nutrition of New Species of Thraustochytrium", pp. 271-279, 1963, <i>Am. J. Bot.</i> , Vol. 50 |
| | BQ | Goldstein et al., "Biology of a Problematic Marine Fungus, <i>Dermocystidium</i> sp. II. Nutrition and Respiration", pp. 468-472, 1969, <i>Mycologia</i> , Vol. 61 |
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| | BS | Hagemester et al., STN Database, AN 88:13222 Biobusiness for Milchwissenschaft, Vol. 43, No. 3, pp. 153, 155-158 |
| | BT | Henderson et al., "Lipid Composition and Biosynthesis in the Marine Dinoflagellate <i>Cryptocodinium Cohnii</i> ", pp. 1679-1683, 1988, <i>Phytochemistry</i> , Vol. 27, No. 6 |
| | BU | Hori et al., "The Nucleotide Sequence of 5S rRNA from a Cellular Slime Mold <i>Dictyostelium Discoideum</i> ", pp. 5535-5539, 1980, <i>Nucl. Acids Res.</i> , Vol. 8 |
| | BV | Hunter, "Fish Oil and Other Omega-3 Sources", pp. 1592-1596, 1987, <i>J. Am. Oil Chem. Soc.</i> , Vol. 64 |
| | BW | Jong et al., "American Type Culture Collection Catalogue of Fungi/Yeast", pp. 350 and 378, <i>American Type Culture Collection</i> , 17th Edition, 1987. |
| | BX | Kates, "Techniques of Lipidology: Isolation, Analysis and Identification of Lipids", pp. 186-278, 1986, <i>Laboratory Techniques in Biochemistry and Molecular Biology</i> , Vol. 3 |
| | BY | Kyle, "Microalgae as a Source of EPA-Containing Oils", p. 1251, 1987, <i>J. Am. Oil Chem. Soc.</i> , Vol. 64 |
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| AA | CA | Lipstein et al., "The Nutritional and Economic Value of Algae for Poultry" in <i>Algae Biomass</i> , G. Shelef and C.J. Soeder, eds., Elsevier/North-Holland Biomedical Press, 1980, pp. 667-685 |
| | CB | Lipstein et al., 1980, <i>Br. Poultry Sci.</i> , 21:9-21 |
| | CC | Mannella et al., "Interrelatedness of 5S RNA Sequences Investigated by Correspondence Analysis", pp. 228-235, 1987, <i>J. Mol. Evol.</i> , Vol. 24 |
| | CD | Miller, "Isolation and Pure Culture of Aquatic Phycomycetes by Membrane Filtration", pp. 524-527, 1967, <i>Mycologia</i> , Vol. 59 |
| | CE | Moss, "Biology and Phylogeny of the Labrinthulales and Thraustochytriales", pp. 105-129, 1986, in <i>The Biology of Marine Fungi</i> , (S.T. Moss ed., Cambridge University Press) |
| | CF | Murty et al., 1961, <i>J. Nutrition</i> , 75:287-294 |
| | CG | Navarro et al., 1972, <i>J. Sci. Fd. Agric.</i> , 23:1287-1292 |
| | CH | Perkins, "Phylogenetic Considerations of the Problematic Thraustochytriaceae-Labrinthulid-Dermocystidium Complex Based on Observations of Fine Structure", pp. 45-63, 1974, <i>Veroff. Inst. Meeresforsch. Bremerh. Suppl.</i> , Vol. 5 |
| | CI | Pigot, "The Need to Improve Omega-3 Content of Cultured Fish", pp. 63-68, 1989, <i>World Aquaculture</i> , Vol. 20 |
| | CJ | Pohl et al., "Fatty Acids and Lipids of Marine Algae and the Control of Their Biosynthesis by Environmental Factors", pp. 473-523, 1979, <i>Marine Algae in Pharmaceutical Science</i> , (Hoppe et al. eds.) |
| | CK | Reiser, 1951, <i>J. Nutrition</i> , 44:159-175 |
| | CL | Ryther, "Cultivation of Macroscopic Marine Algae", pp. 79-88, 1983, <i>Solar Energy Research Institute Aquatic Species Program Review. Proc of the March 1983 Principal Investigators Meeting</i> , SERI/CPI-231 1946 |
| | CM | Schlenk, "Urea Inclusion Compounds of Fatty Acids", pp. 243-267, 1954, <i>Prog. Chem. Fats and Other Lipids</i> , Vol. 2 |
| | CN | Schneider, "Cultivation of Micro-organisms. Section 3.2: Fungi", pp. 337-345, 1976, in <i>Marine Ecology</i> , Vol. 3, Part 1. <i>Cultivation</i> , (O. Kinne ed., Wiley and Sons) |
| | CO | Simopoulos et al. (eds.), <i>Health Effects of Polyunsaturated Fatty Acids in Seafoods</i> , Chaps. 2-5, 7, 17, 1986, Academic Press) |
| | CP | Sorokin, "Dry Weight, Packed Cell Volume and Optical Density", pp. 321-343, 1973 in <i>Handbook of Phycological Methods: Culture Methods and Growth Measurements</i> , (J.R. Stein ed., Cambridge University Press) |
| | CQ | Sparrow, <i>Aquatic Phycomycetes</i> , pp. 36-39, 1960, University of Michigan Press |
| | CR | Wassef, "Fungal Lipids", pp. 159-232, 1977, <i>Adv. Lipid Res.</i> , Vol. 15 |
| | CS | Weete, "Fatty Acids", pp. 49-95, 1980, in <i>Lipid Biochemistry of Fungi and Other Organisms</i> , (Plenum Press) |
| AV | CT | Yamada et al., "Production of Arachidonic Acid and Eicosapentaenoic Acid by Microorganisms", p. 1254, 1987, <i>J. Am. Oil Chem. Soc.</i> , Vol. 64 |

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| ACU | CU | Akimoto et al., "Metal Salts Requisite for the Production of Eicosapentaenoic Acid by a Marine Bacterium Isolated from Mackerel Intestines", pp. 504-508, 1991, <i>JAOCS</i> , Vol. 68, July. |
| | CV | Ando et al., "Incorporation of n-3 Polyunsaturated Fatty Acids into Phospholipids of a Marine Bacterium <i>Vibrio</i> sp. Cultivated with Sardine Oil", pp. 169-171, 1992, <i>J. Fern. Bioeng.</i> , Vol. 73. |
| | CW | Bajpai et al., "Production of Docosahexaenoic Acid by <i>Thraustochytrium aureum</i> ", pp. 706-710, 1991, <i>Appl. Microbiol. Biotechnol.</i> , Vol. 35. |
| | CX | Bajpai et al., "Effects of Aging <i>Mortierella</i> Mycelium on Production of Arachidonic and Eicosapentaenoic Acids", pp. 775-780, 1991, <i>JAOCS</i> , Vol. 68, October. |
| | CY | Bajpai et al., "Optimization of Production of Docosahexaenoic Acid (DHA) by <i>Thraustochytrium aureum</i> ATCC 34304", pp. 509-514, 1991, <i>JAOCS</i> , Vol. 68, July. |
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| | DA | Boswell et al., "SCO Production by Fermentative Microalgae", pp. 274-286, 1992, in <i>Industrial Applications of Single Cell Oils</i> (Kyle et al., eds.), American Oil Chemists' Society, Champaign, IL. |
| | DB | Cohen et al., "Overproduction of γ -Linolenic and Eicosapentaenoic Acids by Algae", pp. 569-572, 1992, <i>Plant Physiol.</i> , Vol. 98. |
| | DC | Gandhi et al., "Production of the Polyunsaturated Fatty Acids Arachidonic Acid and Eicosapentaenoic Acid by the Fungus <i>Pythium ultimum</i> ", pp. 1825-1830, 1991, <i>J. Gen. Microbiol.</i> , Vol. 137. |
| | DD | Hansen et al., "Effects of Culture Conditions on Accumulation of Arachidonic and Eicosapentaenoic Acids in Cultured Cells of <i>Rhytidadelphus squarrosus</i> and <i>Eurhynchium striatum</i> ", pp. 1837-1841, 1991, <i>Phytochemistry</i> , Vol. 30. |
| | DE | Kendrick et al., "Microbial Polyunsaturated Fatty Acids of Potential Commercial Interest", pp. 59-65, 1992, <i>SIM-Industrial Microbiology NEWS</i> , Vol. 42. |
| | DF | Kendrick et al., "Lipids of Selected Molds Grown for Production of n-3 and n-6 Polyunsaturated Fatty Acids", pp. 15-20, 1992, <i>LIPIDS</i> , Vol. 27. |
| | DG | Kyle et al., "Bioproduction of Docosahexaenoic Acid (DHA) by Microalgae", pp. 287-300, 1992, in <i>Industrial Applications of Single Cell Oils</i> (Kyle et al., eds.), American Oil Chemists' Society, Champaign, IL. |
| | DH | Kyle et al., "Microalgae as a Source of EPA-Containing Oils", pp. 117-121, 1988, <i>Proc. World Conf. Biotechnol. Fats Oils Ind.</i> |
| | DI | Radwan, "Sources of C ₂₀ -Polyunsaturated Fatty Acids for Biotechnical Use", pp. 421-430, 1991, <i>Appl. Microbiol. Biotechnol.</i> , Vol. 35. |
| V | DJ | Yazawa et al., "Production of Eicosapentaenoic Acid from Marine Bacteria", pp. 29-51, 1992, in <i>Industrial Applications of Single Cell Oils</i> (Kyle et al., eds.), American Oil Chemists' Society, Champaign, IL. |
| AKU | DK | Yongmanitchai et al., "Screening of Algae for Potential Alternative Sources of Eicosapentaenoic Acid", pp. 2963-2967, 1991, <i>Phytochemistry</i> , Vol. 30. |

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| DL | Yamada et al., "Production of Dihomo- γ -Linolenic Acid, Arachidonic Acid and Eicosapentaenoic Acid by Filamentous Fungi", pp. 118-138, 1992, in <i>Industrial Applications of Single Cell Oils</i> (Kyle et al., eds.), American Oil Chemists' Society, Champaign, IL. |
| DM | Yongmanitchai et al., "Omega-3 Fatty Acids: Alternative Sources of Production", pp 117-125, 1989, <i>Proc. Biochem.</i> |

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